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Edited by **Barbara Zipser**

Simon of Genoa's **Medical Lexicon**



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Simon of Genoa's *Clavis sanationis*: a Study of Thirteenth-Century Latin Pharmacological Lexicography.¹

Introduction

In the course of the thirteenth century, medieval medicine was in the process of adapting and evaluating certain elements recently introduced by the twelfth-century Latin translations of Arabic and Greek works.² Although some of the early translators attempted to eliminate foreign words from their works, at other times new terms were invented by simply transliterating Arabic words into Latin. Moreover, forgotten Classical Greek terms, that had been preserved by Islamic authors, now reappeared.³ At the same time, after the fall of Constantinople to the Crusaders in 1204 and the creation of various Western principalities in Greece and the Middle East, there was a consequent influx of Westerners to the East. This stimulated the exchange of ideas and developed the interrelationships between East and West, which resulted in the circulation of Greek and Arabic medical texts, often previously unknown to Western scholars.⁴ Thus, a vast number of new terms and details on various aspects of medicine from ophthalmology to

¹ I am grateful to Charles Burnett, Vivian Nutton, and Barbara Zipser for their comments on the paper I delivered at the conference, and, in particular, to Dionysios Stathakopoulos, for his advice and suggestions on a later draft.

² For an introduction to the 12th-c. translators, see Marie-Thérèse d'Alverny, "Translations and Translators". In Robert L. Benson and Giles Constable (Eds.), *Renaissance and Renewal in the Twelfth Century*, (Cambridge: Harvard University Press, 1982), 421-462.

³ See Gotthard Strohmaier, "Constantine's pseudo-Classical terminology and its survival." In Charles Burnett and Danielle Jacquart (Eds.), *Constantine the African and 'Alī Ibn al-'Abbās al-Mağdūsī* (Leiden: Brill, 1994), 90-98.

⁴ For example, Peter of Abano (c. 1250–c. 1315), philosopher and professor of medicine in Padua, sojourned in Constantinople at some time between 1270 and 1290 in order to investigate Greek medical manuscripts; see Paolo Marangon, "Per una revisione dell'interpretazione di Pietro d'Abano". In Paolo Marangon (Ed.), *Il pensiero ereticale nella Marca Trevigiana e a Venezia dal 1200 al 1350* (Abano Terme, Padova: Francisci 1984), 66-104. On Peter's Latin translations of Galen, see Lynn Thorndike, "Translations of Works of Galen from the Greek by Peter of Abano". *Isis* 33 (1942), 649-653; and Stefania Fortuna, "Pietro d'Abano e le traduzioni Latine di Galeno". *Medicina nei Secoli*, 20 (2008): 447-463.

surgery and pharmacology, previously unexplored or little discussed, were now available. In particular, in the field of pharmacy, the separation of the profession of physician from that of apothecary by an edict of the Holy Roman Emperor Frederick II (1220 – 1250) promulgated sometime between 1231 and 1240, confirms the concern at the time for the provision of well-researched and well-prepared medicaments.⁵

Two main categories of texts, connected with the identification of various pharmacological ingredients and the preparation of drugs, were available at that time in the West. Firstly, there are alphabetical books of simples, with the various versions of the work of Dioscorides (fl. AD 65) foremost among them.⁶ The various herbals usually derived from earlier Dioscorides manuscripts, come into the same category; these books with their colorful illustrations constitute the most important tool for the identification of various plant-based ingredients.⁷ Related to the texts devoted to simples mentioned above, there are also lists of compound drugs called *antidotaria*. Such texts are usually arranged alphabetically in accordance with the type of compound, i.e. oils, ointments, powders, collyria, purgatives, etc.⁸ The second category includes works with titles such as: *glossaria*, *hermeneumata*, *synonyma*, etc.⁹ These texts provide lists of technical terms in alphabetical order with the formula *id est* followed by the corresponding Latin

5 The edict was not an isolated legislative act, but part of Frederick II's legislation issued with a view to controlling hygiene regulations in Southern Italy; cf. Wolfgang-Hagen Hein, Kurt Sappert, *Die Medizinalordnung Friedrichs: Eine pharmaziehistorische Studie*. (Eutin: Internationale Gesellschaft für Geschichte der Pharmazie, 1957), 17-18 and 98.

6 The *Alphabetical Dioscorides* was the most widespread version between the early 12th-c. and the late 15th-c.; see John M. Riddle, "The Latin Alphabetical Dioscorides Manuscript Group." *Proceedings of the XIIIth International Congress for the History of Science, Acts Section IV*, (1974), 204-209.

7 See Minta Collins, *Medieval Herbals*. (London: British Library and University of Toronto, 2000), 153-220 and 307-308, who describes and discusses the function of different versions of 12th- and 13th-c. Latin herbal compilations.

8 The earliest and most widespread Western collection of compounds was the 12th-c. *Antidotarium Nicolai*, which seems to have been compiled in Salerno; see Gundolf Keil, "Zur Datierung des *Antidotarium Nicolai*." *Sudhoffs Archiv* 62 (1978): 190-6. See also Dietlinde Goltz, *Mittelalterliche Pharmazie und Medizin. Dargestellt an Geschichte und Inhalt des Antidotarium Nicolai*. (Stuttgart: Wissenschaftliche Verlagsgesellschaft, 1976), who discusses the work in the light of contemporary medicine and pharmacy.

9 See MacKinney, who explains the nature and function of medieval medical glossaries and dictionaries. (Loren C. MacKinney, "Medieval medical dictionaries and glossaries." In Lea James Cate, Eugene Anderson (Eds.), *Medieval historiographical essay: in honor of James Westfall Thompson*. (Chicago: The University of Chicago Press, 1938), 240-268). For a fresh description and comparison of the medieval glossaries in connection with the *Synonyma alphita*, see Alejandro García González, *Alphita*. (Firenze: SISMEI edizioni del Galluzzo, 2008), 8-21 and 71-86.

or vernacular word.¹⁰ A vast number of their entries are related to pharmacology, mentioning various substances.¹¹ Finally, there are numerous other texts of the same nature, which were composed particularly as handbooks to facilitate the reading of the recent Latin translations of Islamic authors.¹²

It is quite evident that in parallel with the great activity in the area of translation and revision of Classical works, considerable efforts were made in the field of lexicography. MacKinney, emphasizing the extraordinary number of such works, aptly states that 'during the early Middle Ages [...] it was the epitomizers and lexicographers who held the center of the stage.'¹³ Simon of Genoa, however, in contrast to other thirteenth-century authors, makes a considerable advance in composing a comprehensive, updated work, the *Clavis sanationis*, which could be considered a medical dictionary rather than simply a glossary. The work consists of 6,500 entries in alphabetical order and is substantiated by Simon's own comments. This paper presents a study of the pharmacological sections of the *Clavis sanationis* focusing on and interpreting various categories of the data provided, but also exploring their practical value. As I would like to demonstrate below, the work could be seen as a substantial response to contemporary needs, providing apothecaries and physicians with essential details.

Simon's Life and the Thirteenth-Century Papal Court

There is little biographical data for Simon of Genoa's life. From the incipit of his *Clavis* we can deduce that Simon was a member of the papal curia of Pope Nicholas IV (1288–1292), serving as *subdyaconus* and *capellanus medicus*.¹⁴

10 One of the earliest texts of such kind is the *Synonyma alphita*, a glossary of probably Salernitan origin, which consists of 1269 entries and seems to have been written before 1250. For a new edition and commentary, see González, *Alphita*, 139–575.

11 For example, in the *Synonyma alphita* almost half of the entries, 57%, are dedicated to the interpretation of medicinal plants; *Ibidem*, 25–28.

12 For example the *Synonyma Rasis* and those for the works of Serapion, Avicenna, Haly Abbas etc. For a discussion of various handbooks with synonyms for words used by Islamic authors, see Danielle Jacquart, "Arabisants du Moyen Age et de la Renaissance: Jérôme Ramusio († 1486) correcteur de Gérard de Crémone († 1187)." *Bibliothèque de l'École des Chartes* 147 (1989): 407–408; and Danielle Jacquart and Françoise Micheau, *La médecine arabe et l'Occident médiéval*. (Paris: Maissonneuve et Larose, 1990), 163–164.

13 MacKinney "Medieval medical dictionaries and glossaries", 267.

14 Quotations of Simon's *Clavis sanationis* follow the online transcription in *Simon Online* at <http://www.simonofgenoa.org>. *Clavis*, Incipit: 'Incipit clavis sanationis elaborate per venerabilem virum magistrum Simonem lanuensem domini pape subdyaconum et capellani medicum quondam felis recordationis domini Nicolai pape quarti qui fuit primus de ordine minorum.'

Although the subdeaconate had traditionally been a sacred office, it seems that during the pontificate of Nicholas IV it mainly involved medical duties.¹⁵ The first pontificate to demonstrate the existence of a 'papal doctor' was that of Innocent III (1198–1216).¹⁶ Various famous physicians were employed by popes for their medical services; it is notable that, according to the sources, we can attest more than seventy papal physicians serving at the thirteenth-century court at one time or another.¹⁷ Thus Simon's project regarding the writing of *Clavis* must have played a significant role in his entering and getting the support of the highly medicalized thirteenth-century papal court.

He finished his work after the death of the Pope Nicholas IV and seems to have spent at least two years at the papal curia under Boniface VIII (1296 – 1303).¹⁸ This may be deduced from his reference to Campano of Novara, a famous astrologer, mathematician, and physician, who served the papal court initially under Pope Innocent IV (1243 – 1254), remaining at the curia until his death in September 1296. Simon must have benefited a great deal from the presence of other scholars at the papal court. In referring to Campano he confirms that the latter not only encouraged him in writing the *Clavis* but also provided him with valuable comments.¹⁹ Finally, the success of Simon's time in Rome is further

15 On the transformation of the office of the subdiaconate, see Charles Hilken, "Necrological Evidence of the Place and Permanence of the Subdiaconate." In Kathleen G. Cushing and Richard F. Guy (Eds.), *Ritual, Text, and Law: Studies in Medieval Canon Law and Liturgy Presented to Roger E. Reynolds*. (Aldershot: Ashgate, 2004), 51–66.

16 The 'papal doctor', *medicus papae*, of Innocent III was Master Giovanni Castellomata. On Castellomata's engagement by the papal court see, Agostino Paravicini-Bagliani, *The Pope's Body*. (Chicago; London: University of Chicago Press, 2000), 186–187; and Paravicini-Bagliani, *Medicina e scienze della natura alla corte dei papi nel Duecento*. (Spoleto: Centro italiano di studi sull'alto Medioevo 1991), 217.

17 Cf. Paravicini-Bagliani, *Medicina e scienze della natura...*, 3–51.

18 *Clavis*, preface, § 2: '[...] *medicum quondam felicitis memorie domini Nicolai pape quarti qui fuit primus de ordine minorum*. [...]' A great many translations of medical works were sponsored in the pontificate of Boniface VIII further contributing to the enrichment of medical knowledge; see Paravicini-Bagliani, *The Pope's Body*, 225–234. According to some surviving manuscripts, Simon, with the help of the Jewish-Spanish scholar Abraham of Tortosa (died c. 1330) translated three Arabic treatise into Latin. Two of them are related to simples: a) Abulcasis, *Liber servitoris de preparacione medicinarum simplicium*, and b) Serapion, *Liber aggregatus in medicinis simplicibus*. The third work is an Arabic version of the sixth book of Hippocrates' *Epidemics*. Since, as far as I know, even the necessary philological study has not yet been done, I have not included the aforementioned works in my study. For a general discussion of the translations in connection with Simon's biographical details, see Jacquart, "Arabisans du Moyen Age et de la Renaissance...", 163–164; and Paravicini-Bagliani, *Medicina e scienze della natura...*, 197–198.

19 *Clavis*, preface, § 1: '*Opusculum iam dudum a vobis postulatum quasi quid utile continens cum quanta potui dilligentia qualitercumque ad finem usque perductum ingenio vestro dirigere censui iudicandum* [...]' On Campano of Novara and his medical activity at the papal court, see Paravicini-Bagliani, *The Pope's Body*, 189–190.

attested by his possession of a canonry at Rouen and an ecclesiastical benefice at the cathedral of Padua, which must have been given to him by the Pope in recognition of his services.²⁰

Clavis sanationis

Having given an overview of Simon's connection with the thirteenth-century papal court, I shall now return to the *Clavis sanationis*, the *Key of healing*.²¹ Simon reports that he spent almost thirty years completing his project, in the course of which he undertook many research trips.²² His great spirit of enquiry is also attested by his attempts to establish connections with scholars from other countries such as Roger Bacon (c. 1214 – 1294) in order to check rare manuscripts and thus different versions of various terms.²³ The *Clavis* was written after consulting a great number of texts with significant variations in length, style, and credibility.²⁴ The pharmacological entries consist of a heterogeneous mix of details derived from Greek and Latin sources such as Dioscorides, Cassius Felix (fl. fifth century AD), Alexander of Tralles (c. 525 – 605 AD), or even the twelfth-century Italian translator Stephen of Antioch. Among the Islamic authors,

20 The reference to the canonry at Rouen can be found in Simon's preface, *Clavis*, § 2: 'Venerabile viro magistro Simoni lanuensi domini pape subdiacono et capellano canonico Rothomagensi [...]' On the ecclesiastical benefice at Padua, see Fritz Schillmann, *Die Formularsammlung des Marinus von Eboli*. (Rom: W. Regenberg 1929), I, nn. 3133 and 3134; and Paravicini-Bagliani, *Medicina e scienze della natura...*, 192, n.39.

21 For a general overview of the work, see Moritz Steinschneider, "Zur Literatur der Synonyma." In Julius Leopold Pagel (Ed.), *Die Chirurgie des Heinrich von Mondeville*. (Berlin: A. Hirschwald, 1892), 590-591; and Hermann Fischer, *Mittelalterliche Pflanzenkunde*. (Hildesheim: G. Olms, 1967), 71-74.

22 *Clavis*, preface, § 4: '[...] ut per triginta ferme annos quicquid ad id fieri potuit non obmisi [...]'

23 Roger Bacon records that he had received Simon's requests regarding a Jewish antidotarium and a text of Averroes. Roger Bacon, 'De erroribus medicorum.' In Andrew G. Little, Edward T. Withington (Eds.), *Opera hactenus inedita*, IX. (Oxford: Clarendon Press, 1928), 172: '[...] et Symon vidit antidotarium Cosme et Damiani in Italia et alia antiqua, et querit antidotarium de Alap quod est in Hebreo, et practicam Aueroy's.'

24 See the entry *Kirtas*, in which Simon refers to his visits to various monasteries in order to research manuscripts, *Clavis*, s.v. *Kirtas*: '[...] et sic linitas quoddam glutine appellantes pollibant sic que volumina faciebant, et ego vidi Rome in gazofilatiis antiquorum monasteriorum libros et privilegia ex hac materia scripta ex litteris apud nos non intelligibilibus [...]' On the manuscripts which seem to have been consulted by Simon and survive nowadays, see Paravicini-Bagliani, *Medicina e scienze della natura...*, 193 and 250. For example, he knew both versions of Dioscorides' *De Materia Medica*, including the fifth-century translation and the 11th-c. elaborated version of the text; see Riddle, *Proceedings* ..., 204-9; and Paravicini-Bagliani, *Medicina e scienze della natura...*, 192-193.

we can find Rhazes (865 – 925 AD), Abulcasis (936 – 1013 AD), Avicenna (c. 980 – 1037 AD), and others.²⁵ There are also less rational medical texts such as the *Kyranides* – a popular Greek collection of magical remedies, which has its origins in the first or second century AD.²⁶

Simon's pharmacological awareness and his great concern to provide accurate data is clear in his introductory statement: 'Regarding all simple medicines that are classified into three categories, namely plants, animals, and minerals, it is not enough to rely only on our knowledge of the writings, when we could apportion frequent visits and careful inquiry to support this study, as it is very much related to the diversity among plants.'²⁷ Observation was not of primary importance in pre-Renaissance medicine and authors usually adopted passages uncritically. However, Simon feels it necessary to cross-check textual evidence with personal observation. A reference to his encounter with a woman from Crete, where he had the chance to check some herbs, is a remarkable illustration of his words.²⁸

To provide a convenient starting point for the discussion of certain entries, it is important to mention that of the 770 entries starting with 'A', 581, i.e. almost 75%, contain some pharmacological connotation. The percentage remains roughly the same throughout the entire work. Simon mainly uses two terms to signify a medicament: *farmakon* and *medicamen*. *Farmakon* is a complex medicament, usually made up of various ingredients: a compound drug. He goes even further when he applies the term to a more specific category of drug, classified according to its action: e.g. 'however, we appropriate this name to laxatives'.²⁹ This is probably due to popular use of various kinds of purgatives

25 An overview of his sources is presented in his preface, see *Clavis*, preface, § 4. See also Bertha Gutiérrez Rodilla, "El plumero: la 'Clavis sanationis', de Simón de Cordo (siglo XIII)". *Panacea* 5 (2004): 287-288, who provides a short discussion of the various authors cited by Simon.

26 For example, see *Clavis*, s.v. *Strutho cameleos*: '*Strutho cameleos grece strutio avis deformis si avis dici potest apud kiranidam strutho cameleon, arabice vero vocatur naham.*'

27 All translations of Latin are my own. *Clavis*, preface, § 5: '*Triplici existente omnium medicinarum simplicium genere plantarum videlicet animalium et mineralium non satis ad eorum cognitionem solis scripturis innitendum deputaverim quando frequenti visitatione ac diligenti investigatione ad id studium impendatur, quam maxime circa plantarum distantias [...].*'

28 *Clavis* preface, § 4: '*[...] Nec his solum contentus sed ad diversas mundi partes per sedulos viros indagare ab advenis sciscitari non piguit usque adeo quod per montes arduos nemorosas convalles campos ripasque sepe lustrando aliquando comitem me feci cuiusdam anicule cretensis admodum sciole non modo in dignoscendis herbis et nominibus grecis exponendis [...].*'

29 *Clavis*, s.v. *Farmakon*: '*Farmakon medicamentum maxime compositum: nos autem laxativis appropriavimus hoc nomen [...].*'

thought to remove the noxious humors and bring balance to the body according to humoral theory. However, when he refers to drugs, he generally chooses to use the current Latin term *medicamen*, indicating either a healing substance, a remedy, or an antidote.³⁰

The majority of the relevant substances described in the *Clavis* as having therapeutic properties can be identified with relative certainty. They are divided into five large groups: a) substances of plant origin, b) substances of animal origin, c) substances of mineral origin, d) *composita*, and e) *preparata*. More than four hundred different species of plants can be identified in the *materia medica*. The inclusion of large numbers of animal products taken from mammals, birds, fish, reptiles, and amphibians, but also various species of insects, is noticeable.³¹ Furthermore, although the identification of particular minerals is often uncertain, there is a clear attempt to enumerate Arabic terms for substances of mineral origins, mostly without any explanatory details.³² The fourth group deals with compound drugs. Details of preparation and dosage are not usually given and many of them have specific names such as *Collirium theodoricon* or *Talasa mellis*. The last group, *preparata*, consists of a large number of substances such as oil, wine, honey, butter, and flour which can either be used alone or as ingredients in a compound drug.

We can also note a considerable variety of pharmaceutical dosage forms. Simon considers it important to give an explanation of each type before he makes further use of it. For example, we see that among the entries beginning with 'T', there are seventeen different kinds of lozenges (*trociscus*). Before he mentions the first lozenge dosage form, he provides a short reference to the word *trociscus*: 'lozenge in Greek is called *trochos*, which is a wheel or something resembling a round [object]. Cassius Felix calls *rotulas* what Greeks call *trociscus* and so on.'³³ Simon usually mentions the Latin equivalent in addition to some morphological characteristics such as shape. There are also cases where we have a quite long description, such as for eye drops. He gives details on both

30 For example, see *Clavis*, s.v. *Citron*: '*Citron medicamen ad splenem quod scribitur a Cassius Felix capitulo de splene*;' *Clavis*, s.v. *Echeon*: '*Echeon apud Plinius vocatur medicamen ad visum quod fit ex cinere vipere vive cinerate et melle et succo feniculi*;' and *Clavis* s.v. *Antidotum*: '*Antidotum liber de doctrina greca, antidotos remedium medicamen levamen adiutorium*.'

31 For instance, there are seven different entries dealing with frogs, referring to at least three different species: *Clavis*, s.v. *Batracos*, *Difdhah*, *Gecazum*, *Girinos*, *Miosos*, *Vatrachos*, and *Vatrachi kampite*.

32 *Clavis*, s.v. *Hager alcamar*: '*Hager alcamar lapis lune*;' and *Clavis*, s.v. *Hager alsfengi*: '*Hager alsfengi lapis spongie*.'

33 *Clavis*, s.v. *Trociscus*: '*Trociscus dictus a trochos greco quod est rota vel aliquid simile rotundum Cassius Felix rotulas quas greci trociscos vocant et cetera*.'

administration and preparation: 'collirium is an ophthalmic drug of oblong shape which is rubbed on a whetstone [and diluted] with any liquid when it is placed in the eyes and Arabs call it *sief*.'³⁴ Simon refers to more than fifteen different forms in total including various types of plasters, pills, suppositories, and decoctions.

Since the length of entries varies considerably, my study is based on some characteristic examples of data, which are commonly encountered in the work. These are divided into the following categories:

- I. Synonyms
- II. Etymological Data
- III. Descriptive Data
- IV. Healing Uses
- V. Empirical Statements³⁵

Each group will be examined individually below.

I. Synonyms

One of the most commonly found types of information in the dictionary is a list of synonyms. For example, there are cases of simple disjunction where different names are given in Latin for the same substance such as '*calcitis* and *calciteos* or *calcididos* [...]'.³⁶ But by far the most common examples concern entries with details of synonyms in Greek and Arabic. There are straightforward cases such as '*hager* is the Arabic word for stone' where a direct Latin synonym is provided for an Arabic term.³⁷ This attests Simon's efforts to include a number of mostly

34 *Clavis*, s.v. *Collirium*: '*Collirium est medicina ocularis forma oblonga que fricatur super cotem cum aliquo liquore quando in oculis ponitur et dicitur arabice sief* [...].'

35 The methodology follows the approach used by Stannard in his studies on Byzantine and late medieval pharmacological and botanical lexicography (Jerry Stannard "Byzantine Botanical Lexicography." *Episteme* 5 (1971): 168-187; "Botanical Data and Late Medieval 'Rezeptliteratur.'" In Gundolf Keil et al (Eds.), *Fachprosa-Studien: Beiträge zur mittelalterlichen Wissenschafts- und Geistesgeschichte*. (Berlin: E. Schmidt, 1982), 371-395; "Aspects of Byzantine *Materia Medica*". *Dumbarton Oaks Papers* 38 (1985): 205-211). One might suggest additional categories corresponding to less common or rare details such as supplementary explanatory anatomical details. For example see *Clavis*, s.v. *Alcula*: '*Alcula vel alcola arabice pustule ulcerose que in ore et lingua fiunt*.' However, this study focuses on details related primarily to pharmacology or connected with the properties and the identification of a pharmacological substance rather than inductive explanations of certain terms mentioned in the entry.

36 *Clavis*, s.v. *Calcitis*: '*Calcitis et calciteos vel calcididos* [...].'

37 *Clavis*, s.v. *Hager*: '*Hager arabice Lapis inde hec*.'

Arabic terms and substances that were not widely known at that period in the West. We can also observe some cross-referencing between entries. In the case of *Agalugim*, we can see Simon referring to its Greek synonym, *xilaloos*: '[...] *agalosia* is *xilaloos* [...].'³⁸ As we will see later, the Greek word is also discussed alone in a separate entry. Thus, Simon provides interconnections between individual entries facilitating his readers' recognition of various names and quick searches.

Furthermore, there are more complicated examples with a long list of synonyms. These entries consist of various versions of the same substance as found in a variety of languages and sources: '*Atriplex* is called in Greek *andrafaxis* and in Dioscorides *crisolacana*, and in Latin that means *aureum olus*. In Arabic it is called *kataf* and *sarmeth*, for which Stephen writes *coatutum* and *sermach*.'³⁹ Simon gives the common Latin term, which is accompanied by two Greek words, both found in Dioscorides.⁴⁰ Then he provides a literal Latin translation of the word, i.e. *aureum olus* (golden vegetable), which is followed by the current Arabic equivalent and the versions that can be found in Stephen of Antioch's *Synonyma*.⁴¹ This entry is also indicative of Simon's compiling methods. He uses a variety of sources just for a single word, comparing different versions. His decision to name the authors of earlier works should not be considered a mere copying technique, but a systematic attempt to provide a kind of brief reference for his readers and enhance the credibility of his words.

II. Etymological Data

Simon sometimes supplies the various synonyms with a short etymological explanation. Connecting the etymology of the name of a substance with its uses had long ago been abandoned. Thus Simon does not relate names to healing

³⁸ *Clavis*, s.v. *Agalugim*: '[...] *agalosia* est *xilaloos* [...]'.

³⁹ *Clavis*, s.v. *Atriplex*: '*Atriplex* grece vocatur *andrafaxis* apud *Dyascoridem* et *crisolacana*, et est dictu *aureum olus* ut *infra*, sed arabice *kataf* et *sarmeth* dicitur. *Stephanus* *coatutum* et *sermach*.'

⁴⁰ Dioscorides, II, 119.

⁴¹ Stephen of Antioch or Pisa was an Italian translator of Arabic works, who was active in Antioch in the first part of the twelfth century. He is also the author of *Synonyma Stephani*, a trilingual glossary, in Latin, Greek (in Latin characters), and Arabic, of technical terms arranged alphabetically in parallel columns, which remains unedited. For a short description of Stephen's glossary, see MacKinney "Medieval medical dictionaries and glossaries...", 265-266. On Stephen's works and activity, see Charles Burnett "Stephen, the Disciple of Philosophy, and the Exchange of Medical Learning in Antioch". *Crusades* 5 (2006): 113-129.

properties, but specifies various names of the same plant in order to make clear the association of names with particular substances. A good example is the word *Xiloaloes*. As I have shown above, readers can see its synonymous versions without searching for the word itself. If the reader decides to do so, there is a short etymological phrase explaining that it is 'the Greek term for the wood of aloe'. Thus Simon simply gives the literal Latin translation corresponding to the two-part compound, i.e. ξύλον (wood) and ἀλόη (aloe).⁴²

An etymology also serves an additional purpose: to indicate the nature and origin of a particular substance. This is clearly shown when he discusses the etymology of the compound drug *Talasa mellis*. He provides an etymologically elaborate comment explaining the first word, that is *talasa*: '[...] the name itself is a compound of Greek *talasa*, which means sea, and honey; for it is sea-water that is used in this preparation [...]'.⁴³ Thus, Simon is clearly not interested in providing an etymology of a 'philological' nature, but only to facilitate the correct preparation of the drug.

III. Descriptive Data

There are some entries containing descriptive data such as the recognition, origin, and preparation of certain substances for use in their own or as ingredients of compound drugs. The first group of such details deals with botanical identification. For example, Simon compares one plant to another: '*Gariofilata* is a plant similar to *agrimonie* [...]'.⁴⁴ For Simon, it is quite usual to supply details in relation to geographical origin and habitat. It normally takes the form of a very general description as in the case of *Costum* ('it is found in many locations') or a more specific geographical location such as in the case of *Cabrusium* ('from the island of Cyprus'), indicating a plant native to Cyprus.⁴⁵ Moreover we have cases

⁴² *Clavis*, s.v. *Xiloaloes*: '*Xiloaloes grece lignum aloes*'. See also, Petros Bouras-Vallianatos, '*Xiloaloes*,' with English translation and commentary in *Simon Online*, (www.simonofgenoa.org/index.php5?title=Xiloaloes, 2011): 'The word is in the genitive case following the most common type of case for the ingredients of compound drugs. Greek υ /y/ is phonetically transcribed into the itacist 'ii' and pronounced accordingly. Although an interior elision would normally be expected to occur (with the expulsion of the omikron ο /o/ in ξύλον /xylon/ before the alpha α /a/ in ἀλόη /aloe/), Simon's form retains the omikron ο /o/ by analogy with the orthography of other entries beginning with the compound stem /xilo-/ , such as *Xilobalsamum* or *Xilocarti*.'

⁴³ *Clavis*, s.v. *Talasa mellis*: '[...] *docet et est compositum nomen a talasa quod est mare et melle nam aqua maris in ea confectione ingreditur* [...]'.

⁴⁴ *Clavis*, s.v. *Gariofilata*: '*Gariofilata est planta similis agrimonie* [...]'.

⁴⁵ *Clavis*, s.v. *Costum*: '[...] *invenitur autem in multis locis* [...]' and *Clavis*, s.v. *Cabrusium*: '[...] *et est dictum cyprense a cypro insula* [...]'.

of ancient binomials, where the adjective denotes a country or province (e.g. *Vinum creticum* and *Macedonicum oxilatrum*).

By far the longest descriptions are usually connected with morphological features of plants or plant extracts. This may take the form of a short qualifying statement (e.g. 'costum has a bitter root') or a long phrase mostly adopted from Dioscorides (e.g. 'according to Dioscorides the *tragagantum* root is broad and woody, and has short, strong branches that spread over the ground etc.').⁴⁶ Sometimes these descriptions may include rather subjective characteristics as in the case of *Ebenus*, where the wood appears 'black' and 'solid', but also 'beautiful'.⁴⁷ There are also a limited number of cases that include a long discussion, such as in the case of the *Yris* where Simon uses various comparative criteria such as smell and taste in order to identify three different species, i.e. 'Macedonian', 'Illyrian', and 'Libyan'.⁴⁸ As I have shown, recognition of certain plants could clearly have been facilitated by comparing them with various morphological features in plants of the same family or genus. However, it is noteworthy that Simon's dictionary does not constitute a botanical inventory and it does not have the form of Dioscorides' text, which provided such features in every single entry. These kinds of details are encountered only in a certain number of entries and probably occur only when the identification of a particular substance was questionable by the standards of the day.

IV. Healing Uses

An essential part of Simon's information relates to various healing uses. This kind of information is usually very brief and is provided either by an indirect or direct statement. For many entries the relevant chapter of the book from which the data had been taken was indicated, thus: either '*Achates* [...] Alexander in the composition of hydrocollyriums', or '*Anchusa* [...] Paul's chapter on

46 *Clavis*, s.v. *Costum*: '*Costum radix amara* [...]'; and *Clavis*, s.v. *Tragagantum*: '*Tragagantum Dioscorides radix est lata et lignosa virgas habet breves et fortes et super terram declives in quibus virgis folia sunt plurima et minuta que circa se spinas multas et subcelatas habet que specie albe sunt et fortes radix eius cum maturaverit ferro percussa lachrymum emittit que in sole coagulatur et tragagantum appellatur* [...]'

47 *Clavis*, s.v. *Ebenus*: '*Ebenus sive ebanus lignum cuius interius nigrum solidum pulchrum* [...]'

48 *Clavis*, s.v. *Yris*: '[...] *pendentes sicande sunt melior est tamen macedonica yris an ylyrica et maxime durior et colore ruffo et odore bono. Eligenda est gustu calidior que cum tunditur sternutamenta producit, libica etiam albidior est et gustu amarior* [...]'

dysentery [...]' or 'Berilon [...] in the decoctions for paralysis [...].'⁴⁹ Although no direct statement concerning a particular use is provided, the reader is given the necessary details in order to relate the substance to the treatment of a specific disease. The most common example of entries, which use a direct statement, have the following simple form: either 'Antimonium [...] is an ophthalmic drug [...]' or 'ebenus [...] suitable for eye medicines [...].'⁵⁰ Furthermore, we can find cases with entries that contain therapeutic properties similar to those of another plant. For example, 'Tragagantum [...] its healing virtue is similar to the *paremplast* nature of gum [...]' or 'Armech [...] is an Indian medicine similar to cinnamon [...].'⁵¹ The reader is able to understand and connect the use of a substance with one that is already familiar to them. Thus, Simon's work provides essential information about substances of previously unspecified use. Finally, we may sporadically find various forms of the word 'efficient' either as a noun *efficacia* or an adjective *efficacius* in connection with the effectiveness of certain substances.⁵²

We can see that the space allowed for the various uses is usually restricted to one little phrase or simply a word. Thus, compared to the usually much longer space allowed for the descriptive data, it may seem weird to modern tastes. However, we have to bear in mind that in ancient and medieval medicine most substances had a healing property and paramount importance was given to the process of distinguishing and administering the most suitable substance.

V. Empirical Statements

And last of all there is another type of information occasionally found and included for reasons similar to those already discussed: empirical statements showing Simon's concern to provide the reader with the most useful details resulting from his considerable research and practical experience. It is striking that among other entries, he feels it necessary to give a short explanation of the

⁴⁹ *Clavis*, s.v. *Achates lapis*: 'Achates lapis [...] Alexander in confectione ydrocollirii;' *Clavis*, s.v. *Anchusa*: 'Anchusa [...] Paulus capitulo de dissinteria [...];' and *Clavis*, s.v. *Berilon*: 'Berilon [...] in decoctione ad paralysim [...].'

⁵⁰ *Clavis*, s.v. *Antimonium*: 'Antimonium [...] est medicina ocularis [...];' and *Clavis*, s.v. *Ebenus*: 'Ebenus [...] aptum ocularibus medicis [...].'

⁵¹ *Clavis*, s.v. *Tragagantum*: 'Tragagantum [...] virtus est ei similis gummi et paremplastica et cetera [...];' and *Clavis*, s.v. *Armech*: 'Armech [...] est medicina inda similis cinamomo [...].'

⁵² For example, see *Clavis*, s.v. *Acacia*: '[...] nos vero tali acacia carentes de fructu prunellarum silvestrium succo expresso et de cocto ad spissitudinem facimus et invenitur in ea efficacia [...].'

Greek word *Empyria*: '*Empyria* is Greek for experience, prudence, the wisdom [coming from] experience'.⁵³

The most obvious case is when he uses the first-person singular, in an attempt to increase the plausibility of his words, by providing a personal tone to his statement. A couple of interesting examples, which also illustrate Simon's scholarly approach, are: 'I found it in some book of ancient synonyms in the form *ginda* which is in Latin *iusquiamus*, but I do not know whether they are the same' or 'I have never seen or heard of anyone who has seen it'.⁵⁴ In a similar vein, when he refers to the use of swallow's stones, which were usually employed as an amulet against various diseases, he reports that he had only found white stones in contrast to the sources which mention a black and a red stone.⁵⁵ Although he must have encountered a great number of the substances he mentions in the course of his career, he sometimes supplements an entry with a direct statement regarding the medicinal activity of particular substances. For example, referring to certain species of the *Yris*, he states that '[...]' as for medicinal strength it is only in the second division [...].⁵⁶ Thus, it is important to mention that Simon's statements were not only authenticated by the juxtaposition of information from textual sources, oral sources, and actual observation, but also by the fact that he was a practicing physician.

Conclusions

The *Clavis sanationis* constitutes an ambitious project, which clearly fulfilled a contemporary need. It is not a *vade mecum* with selected and effective recipes and it cannot replace the texts of its cited authors. The *Clavis* has the primary function of providing a quick-reference guide to well-chosen details for substances otherwise scattered among a great number of sources. We can only imagine the difficulty of collecting and collating so many different manuscripts and recording findings without the use of modern technology. Moreover, the constant refining of the data provided thanks to his personal wealth of experience, making the work unique for its time. The rich afterlife of Simon's work, attested

⁵³ *Clavis*, s.v. *Empyria*: '*Empyria grece experientia prudentia exercitatio paritia prudentia*.'

⁵⁴ *Clavis*, s.v. *Ginga*: '*Ginga [...]* invenio in antiquis synonymis *ginda* quod est *iusquiamum*, an sit idem nescio;' and *Clavis*, s.v. *Costum*: '*Costum [...]* invenitur autem in multis locis *costum dulce scriptum in confectionibus, sed nec vidi nec audiui ab aliquo vidisse*.'

⁵⁵ *Clavis*, s.v. *Lapis Chelidoneus*: '*Lapis chelidoneus invenitur in ventribus yrundinum: cuius genera sunt duo, niger et ruffus qui colliguntur captis pulis yrundinum ex nido et fixis eorum ventribus invenitur et cetera, ego vero inveni cum his et albos [...]*.'

⁵⁶ *Clavis*, s.v. *Yris*: '*[...] hec in virtute ponitur in secundo loco [...]*.'

by numerous references in later pharmacopoeias of the succeeding centuries, confirms its widespread use.⁵⁷ Finally, the fact that it has preserved a huge number of names and their relationship with known substances could prove vitally important in the future study of as yet unpublished early Renaissance or late Byzantine pharmacological works.

57 An abridged version of Simon's *Clavis* appeared as early as the fourteenth century; see Collins, *Medieval Herbals.*, 269-70, who discusses one of the earliest surviving manuscripts, *Parisinus Latinus* 6823, of this version. Around the middle of the 15th c., Saladin of Ascoli, physician to the prince of Taranto, included *Clavis* among six texts, which he suggested should be used by contemporary apothecaries; see Teresa Huguet-Termes, "Islamic Pharmacology and Pharmacy in the Latin West: An Approach to Early Pharmacopoeias". *European Review* 16 (2008): 229-239. One more notable example can be found in the Florentine *Nuovo Receptario*, the oldest 'pharmacopoeia', published in 1498, which considers Simon's *Clavis* a prerequisite for the establishment of a new apothecary; see Anna Maria Carmona i Cornet, *Nuovo Receptario Composto dal Famossissimo Chollegio degli Eximii Doctori della Arte et Medicina della Inclita Cipta di Firenze*. (Barcelona: Institut Mèdico-Farmacèutic de Catalunya, 1992) 6r.

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